

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

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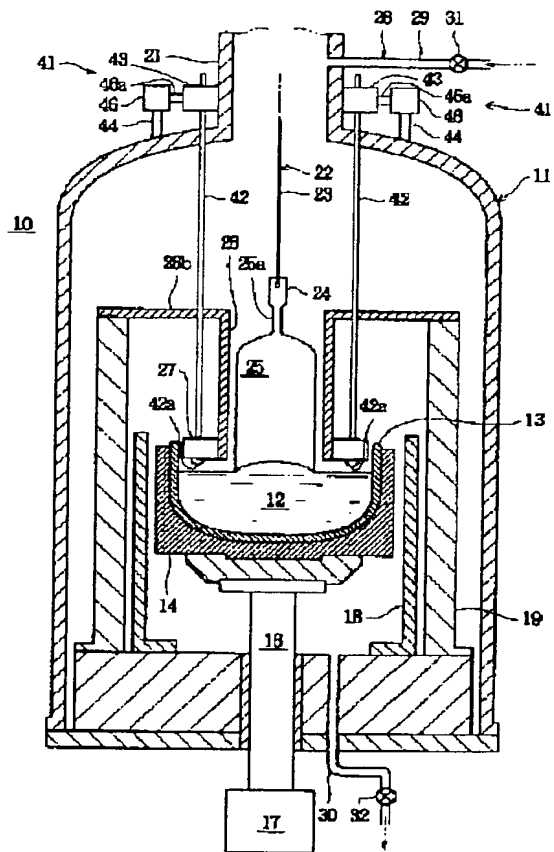
APPLICATION DATE : 11-03-98  
APPLICATION NUMBER : 10059228

APPLICANT : MITSUBISHI MATERIALS SILICON  
CORP;

INVENTOR : SHIMANUKI YASUSHI;

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TITLE : APPARATUS FOR PULLING SILICON  
SINGLE CRYSTAL AND PULLING UP  
THEREOF



ABSTRACT : PROBLEM TO BE SOLVED: To reduce the dislocation content of a silicon single crystal by keeping a silicon melt at a prescribed temperature with a small electric power and preventing the heat of the silicon melt from diffusing into the interior of a chamber.

SOLUTION: This apparatus for pulling a silicon single crystal is equipped with a crucible lifting or lowering means 17 for lifting or lowering a quartz crucible 13 storing a silicon melt 12 therein and a cylindrical heat shielding unit 26 surrounding a silicone single crystal rod 25 grown from the silicon melt 12. The heat shielding unit 26 is provided with an annular heat radiating unit 27 having an area covering a space between the inner surface of the quartz crucible 13 and the outer surface of the heat shielding unit 26. The heat radiating unit 21 is lifted or lowered respectively independently of the heat shielding unit 26 and maintained at a prescribed position by a means 41 for lifting or lowering the heat radiating unit 27. The prescribed position is preferably located at the top of the quartz crucible 13 and one or more through-holes are more preferably formed in the heat radiating unit 27.

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